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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,805	10/21/2003	Jheen-Hyeok Park	1190860-991280	9433

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EXAMINER

LEWIS, DAVID LEE

ART UNIT PAPER NUMBER

2629

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/690,805

Applicant(s)

PARK ET AL.

Examiner

David L. Lewis

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/29/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- 1. Claims 1-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Moon (2003/0043100).**

As in claim 1, Moon teaches of a liquid crystal display, figure 4, paragraph 2,

comprising: a liquid crystal panel including a plurality of pixels including switching elements, figure 4 item 100, paragraph 31, 53,

a plurality of gate lines for transmitting gate signals to the switching elements, figure 4 item 111, paragraph 31

and a plurality of data lines for transmitting data voltages to the pixels, figure 4 item 112, paragraph 31;

a data driver including a plurality of data driving ICs connected to respective sets of the data lines, receiving image data, and applying the data voltages corresponding to the image data to the data lines, figures 1-4 item 3;

and a gate driver applying the gate signals to the gate lines, **figure 1 item 2**

wherein the data driving ICs are supplied with a ground voltage and a supply voltage, **paragraph 57, figure 3 item 3 (Vdd, Gnd)**

and voltage levels of the image data swing with reference to a reference voltage lower than the supply voltage, **paragraph 19, 62**. Wherein low voltage differential signaling and reduced swing differential signaling are performed which are equivalent to said feature as is known.

As in claim 2, Moon teaches of wherein the data driving ICs are mounted on the liquid crystal panel, paragraph 34.

As in claim 3, Moon teaches of wherein the image data received by the data driver are first inputted into at least one of the data driving ICs and shifted to other data driving ICs. paragraph 38-40, 57

As in claim 4, Moon teaches of wherein the data driving ICs include first and second sets of data driving ICs, figure 4 items 3k and 3k+1, and the image data include first and second image data to be inputted into the first and the second sets of data driving ICs, respectively, figure 4 item F2, paragraph 53.

As in claim 5, Moon teaches of wherein each of the first and the second sets of data driving ICs includes one data driving IC receiving the image data from an external device, figure 4 items 3k and 3k+1, paragraph 55-57.

As in claim 6, Moon teaches of wherein the image data for a data driving IC farther from the one data driving IC receiving the image data from the external device precede the image data for a data driving IC closer to the one data driving

IC receiving the image data from the external device, figure 4 items 31 and 3k, paragraph 55-57.

As in claim 7, Moon teaches of further comprising a voltage generator for generating the reference voltage to be provided for the data driver and for generating voltages required for the gate signals to be provided for the gate driver, figure 1 item 4, paragraph 31.

As in claim 8, Moon teaches of wherein the voltage generator generates a plurality of gray voltages to be supplied to the data driver and to be selected as the data voltages, figure 1 item 4, paragraph 31.

As in claim 9, Moon teaches of wherein the reference voltage is inputted to the data driving ICs simultaneously, figure 3 items 3, paragraph 39-40.

As in claim 10, Moon teaches of wherein a signal line for transmitting the reference voltage is provided on the liquid crystal panel, paragraph 40.

As in claim 11, Moon teaches of wherein the image data have a voltage swing level lower than a voltage swing level of a signal transmitted in TTL/CMOS (transistor-transistor logic/complementary metal oxide semiconductor) transmission, paragraph 19 and 62. Wherein said feature is equivalent to LVDS as known in the art, wherein the examiner serves official notice that the LVDS swings are one tenth of the traditional TTL/CMOS levels.

As in claim 12, Moon teaches of wherein the gate driver includes a plurality of gate driving ICs connected to respective sets of gate lines, figure 4 item 2, paragraph 54.

As in claim 13, Moon teaches of a method of driving a liquid crystal display, figure 1-4,

including a liquid crystal panel having a plurality of pixels, figure 1 item 1, figure 4 item 100,

a plurality of gate lines, figure 4 item 111,

and a plurality of data lines, figure 4 item 112,

a data driver including a plurality of data driving ICs for supplying data voltages to the data lines, figures 1-4 item 3

and a gate driver for supplying gate signals to the gate lines, figure 1 item 2,

the method comprising: inputting the image data to at least one of the data driving ICs, figure 4 item F2, paragraph 55;

and shifting the image data to the data driving ICs, paragraph 38-40, 57

wherein the data driving ICs are supplied with a ground voltage and a supply voltage, paragraph 57, figure 3 item 3 (Vdd, Gnd)

and voltage levels of the image data swing with reference to a reference voltage lower than the supply voltage, paragraph 19, 62. Wherein low voltage differential signaling and reduced swing differential signaling are performed which are equivalent to said feature as is known.

As in claim 14, Moon teaches of wherein the shift direction of the image data is two, figure 4 items 3k and 3k+1, paragraph 55-57.

As in claim 15, Moon teaches of wherein the image data has a voltage swing level lower than a voltage swing level of a signal transmitted in TTL/CMOS (transistor-transistor logic/complementary metal oxide semiconductor) transmission, paragraph 19 and 62. Wherein said feature is equivalent to LVDS as known in the art, wherein the examiner serves official notice that the LVDS swings are one tenth of the traditional TTL/CMOS levels.

As in claim 16, Moon teaches of wherein the reference voltage is simultaneously inputted to the data driving ICs, figure 3 items 3, paragraph 39-40.

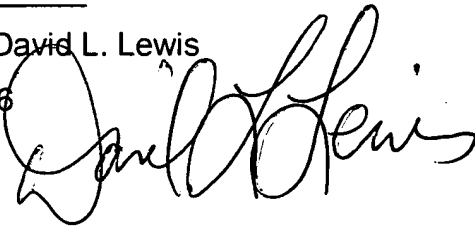
Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Moon (6480180)** teaches of LVDS and RSDS signaling as known in the art.
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.
4. Please note that all future correspondences directed to David L. Lewis must be sent to Art Unit 2629.

5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: David L. Lewis

May 1, 2006

A handwritten signature in black ink, appearing to read "David L. Lewis", is written over the printed name and date.